

## Editorial

# ISO 14041: Environmental management – Life Cycle Assessment – Goal and Scope Definition – Inventory Analysis

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On August 11, 1998, the ballot period for ISO standard 14041 reached its conclusion at all of the standardization institutes involved and, analogously, among all of the CEN members. According to the ISO regulations, abstentions (in this case, one single country) are not counted so that a consent of 100% was reached by the 29 participating countries. With this result of the voting, the processing of standard 14041 was completed successfully after 4 ½ years of work by working groups 2 and 3 (subcommittee 5 of the ISO Technical Committee 207), an important step in forming the entire architectural structure of the "standardization family" involved with LCA ISO standards 14040 - 14043.

This work began in Paris with the establishment of a work program at the first meeting of the work group in November 1993. As a further development of the activities from SETAC, which demonstrated its zenith with the passing of the "Code of Practice" in the spring of 1993, this work group has allowed the possibility of achieving relatively efficient work. Nevertheless, a further 9 meetings were required for the completion of the documentation of the Working Group Drafts (WD) by way of Committee Drafts (CD), ISO Drafts (DIS) and Final ISO Drafts (FDIS).

Over 50 experts from 20 countries have made a contribution to the establishment of ISO standard 14041. As a conservative estimate, this represents a total of 1200 workdays. This corresponds with approximately 5 staff years. Considering the time required for both the preparation and the subsequent evaluations, as well as for travel, one must assume a minimum of 10 staff years. Not included in this estimation, however, are the activities of the national standard bodies like the DIN, BSI, JEMAI or AFNOR.

Does the result of this work – the development ISO standard 14041 – justify the amount of time/energy/money required?

My answer is indeed affirmative. An important goal in standardization has been reached, offering more safety for the clients and users of LCA. Before beginning the standardization procedure, the decision concerning many details lay in the hands of numerous individuals. Headlines like "Is the eco-balance a lie?" or "Eco-balances provide that which is sought by the clients" were therefore seen to prevail. With the completion of ISO standard 14040, and now with that of ISO standard 14041, regulations have been set up for such controversial topics as the establishment of system limitations or allocations.

ISO standard 14041 provides regulations for the GDS and inventories. These regulations, however, provide enough freedom that they can be applied to eco-balances in all other areas as

well. The application of this standard is facilitated through the technical report on ISO standard 14049, "Illustrative examples on how to apply ISO 14041", which will be completed in the near future.

As an example for the freedom allowed by these rules, not fixed allocation regulations have been given. Instead, principles and procedures have been developed in the section on the "Allocation of flows and releases" in standard 14041. General requirements are defined concerned with the "Allocation principles". The demand that "whenever several alternative allocation procedures seem applicable a sensitivity analysis shall be conducted to illustrate the consequences of the departure from the selected approach" is especially important. The "allocation procedures" involve a three-stage process including the avoiding of allocation, the application of physical relationships between the tie-in products and the application of such other relationships as, for example, economic value. Additional information is provided in a further subchapter on "Allocation procedures for reuse and recycling".

In another example, the system boundaries have not been defined absolutely, but rather in dependence on the goal of the study and based only on peripheral conditions. Here, for example, the selection of the input takes the criteria of mass, energy and ecological relevance into account. The limit of consideration must be determined during the first phase of eco-balancing – as a part of goal and scope definition.

A negative consequence of these flexible rules is that different results may be obtained from studies which, to all intents and purposes, are equivalent. In order to avoid this problem, the standards demand an independent examination of the applied method and the study results, a critical review, as well as a report with the basic support of a transparent portrayal of the study and its results. Considering this last point, ISO 14040 contains less extensive demands than ISO 14041 which play a role in the first two phases of the LCA, the GDS and inventories. The demands of the data categories and data quality are provided as examples.

With standard 14040 and 14041, and the highly developed documents 14042 on impact assessment and 14043 on interpretation, subcommittee 5 has, for the most part, fulfilled its assignments for a "provision of standards on LCA". Both of the documents cited last will be published in conclusion during 1999. All of these standards must now prove themselves in practical application. As a result of the ever broadening development of methods and as a consequence of the applications, the possibility of revisions must be anticipated within an appropriate time limit.